

### **CLAIMS**

1. (Original) A system for rendering chemical weapons materiel less hazardous, the system comprising a detonation chamber, an emission treater, and an expansion chamber in fluid communication with the detonation chamber and the emission treater, wherein the emission treater is adapted to treat gas from detonation of the chemical weapons materiel, yielding a substantially dry residual waste stream and a treated gas suitable for venting to atmosphere.
2. (Original) The system of claim 1 wherein the detonation chamber includes an inner chamber and an antechamber that can be sealed from the inner chamber, the antechamber including an air inlet and an air outlet configured to flush gas in the antechamber.
3. (Original) The system of claim 1 wherein the emission treater includes a conduit configured to introduce an alkaline powder into the gas being treated.
4. (Original) The system of claim 1 wherein the emission treater includes a solids reactor adapted to introduce an alkaline solid and a catalytic converter.
5. (Original) The system of claim 1 wherein the emission treater includes means for controllably cooling the gas from the detonation without introducing a liquid into the gas.
6. (Original) The system of claim 1 wherein the emission treater includes a reactive solids conduit and a heated gas conduit, wherein the reactive solids conduit is configured to introduce an alkaline powder into the gas being treated and the heated gas

conduit is configured to deliver heated gas to heat the gas in contact with the alkaline powder to a solids reaction temperature of at least about 600 °F.

7. (Original) The system of claim 6 wherein the heated gas conduit is configured to deliver heated gas to heat the gas in contact with the alkaline powder to the solids reaction temperature of no greater than about 1,200 °F.

8. (Original) The system of claim 1 wherein the emission treater includes a conduit for delivering heated gas to the gas being treated.

9. (Original) The system of claim 1 wherein the system is of modular construction, with each module being sized for transport as an intermodal container.

10. (Original) The system of claim 1 wherein the system is of modular construction and includes first, second, third, and fourth modules, the first module comprising the detonation chamber, the second module comprising the expansion chamber, and the third and fourth modules comprising modular sections of the emission treater.

11. (Original) The system of claim 1 wherein the detonation chamber has an atmosphere comprising at least 25 weight percent oxygen and the system further comprises a detonation package in the detonation chamber, the detonation package including a container of the chemical weapons materiel and a charge of energetic material.

12. (Original) The system of claim 1 further comprising a pulse limiter disposed between the expansion chamber and the emission treater, the pulse limiter defining a communication opening having a first size during a first pressure phase and a second,

larger size during a second pressure phase, the pressure in the first pressure phase being greater than the pressure in the second pressure phase.

13. (Original) The system of claim 1 further comprising means for heating an inner surface of the detonation chamber to a temperature of at least about 120 °F.

14. (Original) The system of claim 13 wherein the means for heating the inner surface comprises a heater that heats the expansion chamber.

15. (Original) The system of claim 1 further comprising first heating means for heating an inner surface of the detonation chamber to an operating temperature of about 120-300 °F and second heating means for heating the inner surface to a higher decontamination temperature for use in periodically decontaminating the detonation chamber.

16. (Original) The system of claim 13 wherein the first heating means comprises a heater that heats the expansion chamber.

17. (Original) The system of claim 1 further comprising a mechanical loader operatively associated with the detonation chamber and adapted to deliver the chemical weapons materiel to the detonation chamber.

18 – 47 (cancelled)